

# **Designing for Resonance – A Value Sensitive Design Approach to Enhancing User Experience on Online Dating Platforms**

**Master Thesis in Techno-Anthropology**

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# Abstract

In the modern era of pervasive digital interfaces, online dating stands at the captivating juncture of technology and human connections. This landscape demarcated by superficiality and choice overload provides a unique ground for examining the evolving dynamics of contemporary relationship formation, mediated by recommender algorithms and artificial intelligence. Using a value sensitive design approach, this research aims to refine user experience by inscribing the value of resonance into the technology development. By operationalising Hartmut Rosa's social theory of resonance and integrating it within Ibo van de Poel's values hierarchy, the findings offer a contemporary perspective for aligning usability with human values of ethical importance. Based on eight value-oriented semistructured interviews, the research revealed a diverse set of design solutions that could potentially elevate user experience and, ultimately, nurture more resonant connections within the domain of online dating.

Keywords: Value sensitive design, resonance, values hierarchy, online dating platforms

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# Introduction

In the ever-evolving landscape of digital connectivity, the dynamics of human relationships have undergone a significant shift. Within this context, online dating platforms have emerged as influential intermediaries to facilitate romantic connections. The quest to find a suitable partner has transformed over time, from early personal ads in the 1700s to the emergence of videocassette dating services in past decades (Anderson, 2020). This evolution persisted with the advent of online dating and mobile applications. The phenomenon of online dating has taken the world by storm, reshaping the way people seek and establish connections with others. With the increasing presence of smartphones and perpetual internet access, the popularity of dating sites such as Tinder and Bumble has witnessed a remarkable surge over the past few years. As people worldwide embrace the convenience and opportunities presented by digital platforms, the statistics reveal continual growth in the volume of users, surpassing geographical and cultural boundaries. In 2022, a staggering 366 million users have been registered, which number is forecasted to grow to 440 million by 2027 (Dixon, 2023). This unprecedented expansion signifies a paradigm shift in modern romance, framing a new era of interpersonal relationships and virtual encounters on a global scale. This shift is not confined to the realm of romantic matters; it has an impact on the quality of social exchanges on a larger scale, nurturing a culture of perfected personas and fleeting connections. Dating platforms, similar to social media sites, are prominent players in this paradigm, encouraging the cultivation of carefully constructed online profiles that blur the line between genuine intimacy and a competitive social game.

Matching algorithms have become the primary technology that fuels the functioning of online dating platforms, relying on mathematical calculations marketed for their scientific precision to suggest potential dating partners to users. It is imperative to acknowledge that algorithms possess the potential to influence every facet of relationship formation, from the individuals people meet to how they ultimately perceive their partners and conduct themselves in their relationships (Sharabi, 2020). Recommender algorithms, while integral to the operation of online dating platforms, are part and parcel of this larger cultural phenomenon. They mirror and amplify the preferences of a society increasingly fixated on instant gratification and superficial connections. By prioritising user retention, familiarity and predictability, these

algorithms perpetuate the homogenisation of users, exacerbating the underlying social problems.

Hartmut Rosa's theory of resonance offers a response and potential solution to the problems outlined above. In his book titled *Resonance: A Sociology of our Relationship to the World*, Rosa offers both a critique and antithesis to social acceleration and alienation, topics within his critique about modernity's broken promise. Resonance denotes a specific dynamic between an individual and the world or between several people, characterised by mutual response, influence and a unique quality of relating to one another. His theory extends to explain social relationships, including romantic connections, which serve as an anchor for the forthcoming investigation.

Taking its starting point in value sensitive design (VSD), the following research aims to investigate potential solutions for value inscription into the given technology, using Hartmut Rosa's theory of resonance in combination with the framework of value sensitive design. The goal of anthropology-driven design is to help make designers and other relevant stakeholders receptive to the given sociotechnical phenomenon, and offer them the right vocabulary, conceptual framework, design opportunities that can potentially improve the technology (Christensen, 2016).

This research concentrates on the critical area of the user-artefact interface within the techno-anthropological domain. The aim is to locate problematic areas within this pivotal juncture and introduce value sensitive design solutions to tackle the identified problems. By focusing on this specific interface, this project seeks to identify potential ways to refine user experience, enhance ethical considerations, and ultimately foster more meaningful connections within the realm of online dating.

Based on the above, the problem formulation and research question are the following:

**How can value sensitive design improve the user experience of online dating platforms to forge resonant human connections while sustaining users' interest in using the platform?**

*What design solutions can ensure the inscription of the value of resonance in the development of online dating platforms?*

## **Literature Review**

### **Online Dating**

According to Maslow's hierarchy of needs, love and belonging are some of the core drivers of our existence, which make many of us pursue romantic or intimate relationships. It is not a new phenomenon to turn to third parties for help in finding a suitable partner, but a practice that existed long before the internet era. Whether a religious leader, family member, friend of a friend, organised speed-date event or a personal ad in a newspaper, it's been common practice to look for places and mediums where one could increase their chances of finding the right partner for their romantic pursuits (Sharabi, 2020).

Over the last few decades in the United States (US), online dating has become the most popular way for heterosexual couples to meet or have an initial interaction, even surpassing the occurrence of meeting through friends. Previous surveys conducted with Americans found that online meetings for heterosexual couples increased from 0% before 1995 to approximately 22% in 2009. Recent data from 2017 shows that this trend has continued, with online meetings now transcending meetings through friends as the most common way for heterosexual couples to meet. These tendencies have led to an environment where online platforms replace the role that family members and friends used to play in mediating the initial introduction of couples (Rosenfeld et al., 2019).

Technology gives users vastly more options than what they used to have prior to the existence of online platforms. While decades ago people were at the mercy of getting to know others who were in their closest proximity, this has entirely changed as today the world of dating knows no borders, and one can start a conversation with a stranger on the other side of the

globe in no time. The excessive amount of possibilities to connect with others has changed the way people interact with one another in profound ways. One of the greatest benefits online platforms offer is the opportunity to open up the dating pool beyond people's immediate network and community.

The first big change in people's dating habits came about in 1995 when Match.com, the most influential player in the world of online dating, was founded. During that time, such sites used surveys and other compatibility-based approaches to pair up couples. These methods prevailed in the online dating scene up until 2009, when compatibility-based measurements were replaced by distance-based suggestions, which meant seeing people who were closest to the user. Further developments appeared on the scene when Tinder, the most popular dating site owned by Match.com, publically confirmed in 2016 that its matchmaking algorithm is based on the Elo-score. Tinder adopted a framework traditionally used to rank chess players, and applied it to line up its users based on desirability metrics and then match them accordingly. A few years later, the company denied the use of the Elo-score, creating a trend in the online dating scene where companies take a black-box approach and do not share details publically about what factors into their algorithms (Klein, 2023).

One of Match's most recent Singles in America surveys showed that online dating is used by over half of single adults, a number that may well be increasing due to the proliferation of mobile dating apps. Perhaps even more startling, as many as 39% of heterosexual and 65% of same-sex couples in the United States now owe their start to the internet. (Rosenfeld et al., 2019 as cited in Sharabi, 2020, p. 3)

"In 2022, mobile dating market leader Tinder was the world's most downloaded dating app, generating 64 million downloads. Mobile app Bumble, which went public in February 2021, amassed 28 million downloads, ranking as the second most popular dating app worldwide." (Statista, 2023, p. 1). These statistics clearly show an increasing interest in relying on digital technologies to find success in one's dating life. At the same time, the growing interest also brings about questions and potential critiques about the technology's impact on its users.

Though the platforms try to mimic real-life situations and encounters, interacting with a profile online often doesn't give a true sense of what it would feel like to be with that individual in person. On the one hand, these platforms make the outlook seem great as they claim to exist to help people form successful relationships by helping them get to know more and more potential individuals. On the other hand, if these platforms are really doing what they claim, ultimately, users would cease to be active and leave the app once they find what they were looking for, which presents a serious dilemma regarding the transparency of these businesses.

### **Functions of the Platform**

Online dating platforms offer three primary services: access, communication and matching. Access refers to the opportunities the platforms open up for users to get to know people beyond their regular social circles. Communication encompasses computer-facilitated communication (CMC) that users can engage in up until they move conversations to the offline world. Matching refers to the use of mathematical algorithms to suggest potential partners to choose from based on certain compatibility measurements (Finkel et al., 2012).

On dating apps, recommender algorithms ensure the function of matching. Its suggestions become a match when both parties reciprocate interest towards each other. The function is very similar to the way Spotify suggests songs for users to listen to, Netflix does the same with movies subscribers may want to watch, or the mechanism that Amazon employs to recommend products to be added to shopping baskets. The main difference between recommending people and products is that the interest has to be reciprocated when it comes to people for it to be transactional. While adding a preferred movie to a playlist is a voluntary and one-sided decision, in order for someone to be able to meet a person on a dating app, the other user must show interest as well. This makes the matching process much more complicated and reduces the success rate of the algorithm as opposed to when it is applied to products. When it comes to tuning the suggestions for products, it might be enough to show the user a higher number of suggested items when, say, shopping for a living room sofa to better understand their preferences in colour, size or price range. However, attraction, sexual desire, preferences in humour and interpersonal behaviour cannot be calculated and predicted just as simply (Wall Street Journal, 2023).



## **Technology Behind the Platforms**

A recommender systems (RS) is an algorithm-based web technology, used in platforms like Amazon, Netflix and Tinder, that suggests items to users based on their online interactions or explicitly stated preferences. They rely on extensive personal data, impacting our digital experiences and interactions. While there is a technical focus on improving their efficiency, their development has largely prioritised business applications with a commercial objective in mind. Yet, they hold broader societal implications, shaping individual and collective choices (Milano et al. 2020). This trend can be seen in RS's application in dating platforms, where the profitability of the companies overrides a user-centric approach that would prioritise positive user experience as opposed to the business's financial interest.

Previously, the effectiveness of recommender systems has been evaluated based on algorithmic performance, specifically prediction accuracy. However, recent years have seen a surge in interest directed towards user-centric measurements, which is an area relevant for this research's purpose. As a specialised area within artificial intelligence (AI), recommender algorithms play a vital role in tackling the challenges posed by information overload in contemporary societies, where the volume of available data is expanding each day. Over the last few decades, these systems have experienced a steady proliferation and have become widely applied, from improving users' online experiences to majorly benefiting a large number of profit-oriented corporations (Chen et al., 2022).

Some platforms such as Bumble, the second most popular dating site, use a method in which users are asked to fill out a number of questions upon registration and self-report their preferences or information about themselves. The algorithm can use this information to fine-tune its recommendations to deliver options that match the user's criteria. One of the issues is that users believe that the platform simply shows them people who are close to them in geographical distance, unaware of the complex mathematical calculations that power these suggestions. Recently, several platforms have allowed users to skip the process of self-reporting preferences and let them use the app, by browsing profiles through the swipe function, immediately. After sufficient swiping, the algorithm has the ability to figure out the preferences of the user without direct input. Over time, using a technique called collaborative

filtering, these platforms can construct a user's ideal dating partner type based on the behaviour of other users who display similar tastes in people. A basic example could look like the following: 1) user A indicates that they like the profile of a recommended person (X) and swipe right on them, indicating interest 2) the algorithm checks other users who also swiped right on X 3) majority of these people also swiped right on Y, so the algorithm chooses to serve up Y's profile as the next recommendation to user A. This method allows the platform to not require explicit data input from users but manages to figure out a user's preferences based on how they interact with certain profiles (Wall Street Journal, 2023). The primary goal of online dating is long-term compatibility between partners. However, scepticism exists about algorithm effectiveness in predicting long-term success, as there is little to no objective evidence for the validity of matching algorithms. Critics say that there is minimal chance for a site to be able to predict the long-term potential of a relationship between people who have never met in person (Sharabi, 2020).

### **Collaborative Filtering**

The main function of collaborative filtering is to predict user preferences based on similar users' past behaviour. The algorithm learns from the preferences of other users who are similar to the target user and predicts their preferences based on majority opinion. It recommends movies, products or people for the target user using these predictions. Its use is highly applied on platforms like Amazon and Google and extends to dating app dynamics too. While using collaborative filtering to suggest commercial products for shoppers to buy is harmless, applying the same technology to power dating apps raises various ethical considerations (Nader, 2020). Such apps tend to sort individuals by race due to observed behavioural patterns, leading to racial segregation and preference for certain races. Collaborative filtering algorithms learn from these patterns, potentially reinforcing biased behaviour and homogenising user behaviours.

### **Problems with the Technology**

The following section presents literature about recommender systems, the underlying technology behind online dating platforms, as well as the platforms themselves, where RS is

applied. The reason for this broader view is that dating platforms cannot be problematised in isolation without talking about their driving technology, that is essential to their functioning.

### **Homogenisation of Users**

A common issue that comes up regarding the application of RS in various fields is its homogenising effect. When studying recommender systems in the music industry, it has been discovered that recommendations lead to a higher degree of similarity in purchasing behavior among consumers (Fleder & Hosanager, 2010). They found the cause can be attributed to both a surge in overall purchases (referred to as the "volume effect") and a shift towards more similar product choices (termed the "taste effect"). "[...] the effects of recommender systems and online filters have connections to democracy itself: "it is highly desirable for a democracy to contain a kind of 'social architecture' that offers both shared experiences and unanticipated exposures," and there is concern that recommenders could weaken this if they show people only what they already like and know" (Sunstein, 2001 as cited in Fleder & Hosanager, 2010, p. 29). Dating platforms are subject to a wide array of similar problems that they potentially aggregate, including problems like popularity bias, filter bubbles, and a tendency to recommend already popular content. The measure of popularity is often based on data metrics like post likes, video views, or star ratings. While this may lead to recommendations that satisfy individual users, it ultimately results in a decrease in overall diversity, as the user community becomes increasingly alike. This leads to locally optimal results, meaning the individual users might be satisfied but it consequently generates globally sub-optimal effects that are detrimental to diversity on a group level (Hong, 2020).

### **Ethical Concerns**

There are various ethical challenges associated with recommender systems (RS), which are prevalent in online platforms. Milano et al. (2020) identified six main areas of concern:

#### **Inappropriate Content:**

Some RS may recommend content that is culturally or ethically inappropriate. Proposed solutions include using ethical filters based on cultural norms or allowing users to set their own ethical preferences.

### *Privacy*

RS often involve collecting and using user data, which can lead to privacy risks. This includes unauthorised data collection and sharing, as well as the potential for de-anonymisation of stored data.

### *Autonomy and Personal Identity*

RS can influence users' behavior and choices, potentially encroaching on their autonomy. Additionally, algorithmic categorisation may impact how users perceive their own identity.

### *Opacity*

Providing explanations for personalised recommendations can be challenging, as it may reveal sensitive information or distort the accuracy of the recommendations.

### *Fairness*

RS can inadvertently perpetuate social biases, which raises concerns about fairness. Approaches to address this issue include measuring and mitigating biases in recommendations.

### *Social Effects*

RS, particularly in news and social media platforms, can create "filter bubbles" that limit users' exposure to diverse viewpoints. This can have implications for public debate and democratic processes.

## **Trapping Users Through Captivation Tactics**

Drawing on anthropological theories of animal trapping, Seaver (2019) conceptualises recommender systems as traps. He traces the emergence of "captivation metrics," which measure user retention, driven by shifts in the epistemic, economic, and technical contexts of these systems. Thinking about recommenders as traps provides a fresh perspective on their relationship with users and technological infrastructures. As recommender systems become increasingly pervasive and extend to the world of online dating as well, this framing offers an

alternative to conventional ethical discussions on what freedom means. Seaver uses the term captology to refer to captivating online mechanisms that capture users' attention and coerce them into a certain type of behaviour. Today, the primary goal of employing recommender systems is keeping users engaged and retaining them as paying subscribers on platforms. While early captology focused on broad audience capture, the modern version tailors recommendations to individuals, reflecting a more nuanced understanding of human behaviour. The focus moved from the accuracy of predicting ratings to capturing user attention, referred to as engagement. This change was driven by the realisation that improvements in prediction accuracy had diminishing returns, as user preferences were inherently unstable and context-dependent. This captological turn led to the emergence of captivation metrics, which measure user retention and interactions over time, indicating the system's ability to captivate users. Captivation metrics have become central indicators of a company's success, particularly in the software industry. The ubiquity of captology in online cultural life has raised concerns about privacy and the behaviourist underpinnings of such design. Critics argue that users are often caught in these traps, and the challenge lies in reconfiguring these social infrastructures to create better social environments (Seaver, 2019).

### **Black Box Approach**

Algorithms pose considerable influence in various aspects of our social interactions, impacting individual decision-making processes. In the realm of online platforms, these algorithms are strategically integrated to optimise user experiences by regulating platform activities and content. Commercial platforms prioritise attracting and retaining a large and engaged user base to drive business growth and, most importantly, economic value. However, algorithms remain largely invisible to users, as they are not informed about how their data is processed or used, and opting out often requires abandoning the services altogether. The opaque nature of algorithms leaves users unaware of their exact workings and the impact they have on shaping the outcomes of their online interactions, including their dating life (Courtois & Timmermans, 2018).

### **Unenjoyable User Experience**

The following section discusses various aspects of online dating that users deem unenjoyable or unsuccessful in bringing them closer to their anticipated social relationship goals that

motivate their system use. Difficulties related to online platform use stem from the premise that users participate in online dating with the expectation of achieving their desired social relationship outcomes. Pleasure is a notable driving force behind users' engagement, which arises from the excitement of moving towards predefined relationship goals. Zytko et al. (2018) found the following reasons that often lead to an unenjoyable user experience:

### ***Excessive choice of profiles***

The evaluation of potential partners' profiles is highlighted as a prominent issue that users face. The phenomenon of choice overload is pointed out as a main cause of unsatisfying user experience, referring to situations where users facing numerous profile options can struggle to make decisions and may employ shallow evaluation strategies of the suggested profiles. The design of online dating systems, that allow users to go through hundreds of potential dating partners in minutes, also encourages rapid evaluation, potentially leading to unenjoyable experiences. Haino and his colleagues coined the term “relationshopping”, referring to the detrimental spree of profile page evaluations:

[...] the ability to filter through thousands of profiles [...] encouraged a shopping mentality, in which participants searched for the perfect match based on discrete characteristics and reduced potential partners to the sum of their parts. Decision making based on these qualities was quite different from offline dating situations in which individuals often get a more holistic impression of the individual, usually taking into account unquantifiable aspects of personality (such as energy level) and interaction (such as chemistry) (Haino et al, 2010 as cited in Zytko et al. 2018, p. 65).

### ***Deception for attraction***

Since most dating platforms function on a primarily visual basis where users' initial evaluation criteria are defined by others' level of attractiveness, users are tempted to paint a picture of themselves that is not always truthful. Creating a profile that displays an individual in an attractive light and maximises their appeal is evidently necessary to increase their chances of reciprocated interest. However, this often results in concerns related to the use of

deceptive strategies and negative implications for self-worth, which breeds an unenjoyable user experience.

### ***Crafting the right messages***

Finding the right words to send when initiating an online conversation proves to be anxiety-triggering for many users. Male users in particular report increased anxiety caused by the lack of or ambiguous responses they receive, fearing this may hinder their ability to attract desirable partners. This might be exacerbated by the fact that typically male users initiate more conversations than female users and receive fewer responses too. An added factor that adds to the apprehension of both male and female users is choosing the right time to move an online conversation into the offline realm. Early or late timing, judged by entirely subjective measures, often leads to the discontinuation of the contact between the parties, creating an unenjoyable experience for both. Additionally, female users frequently report receiving offensive messages that negatively affect their self-esteem and interactions. The hurdles presented by the world of online messaging opened up opportunities for an entirely new business area; dating coaches. They advise clients on matters such as the one presented above, often selling prewritten messages to solicit the desired responses.

### ***Identifying relationship goals***

Users pursue a variety of relationship goals beyond long-term romance, including casual sex and platonic connections. However, many of them struggle to convey and identify such alternative relationship goals due to a number of reasons. An example is heterosexual users who tend to disguise their interest in casual sex due to perceived stigmatisation, which leads to misunderstandings. This might mean wasted resources in time and emotional energy invested in people who turn out to be incompatible partners at later stages, resulting in unenjoyable user experiences.

Overall, the aforementioned experiences shed light on the intricate dynamics of online dating user experiences that are highly subjective and difficult to predict. The question also arises as to why people tend to keep using the platforms despite their unenjoyable experiences. The study found that users may believe they might be using the platform incorrectly or

inefficiently, explaining their unsuccessful attempts. As a solution, they try to rectify the situation by modifying their user strategies. From a system design perspective, there are certain features that feed into their perception. Dating platforms like Tinder and Bumble have various design elements that create momentary gratification in users that they tend to seek after. Some examples include the gamification of the swiping feature, notifications of profile likes, unread messages, new matches, or compatibility alerts. Unenjoyable experiences followed by positive gratifications sustain a cycle of desire-seeking behaviour and, consequently, further motivate system use. Unenjoyable experiences weaken users' perceptions of progress, but the frequent small gratifications act as drivers, providing users with a reason to persist and renew their anticipation for eventual relationship success.

Pleasurable user experiences with online dating systems are contingent on the user's perception that the resources they devote to online dating system-use (e.g. time, money, emotional energy) are bringing them closer to achieving their social relationship goals. Conversely, unpleasurable user experiences are ones in which users believe that the resources devoted to online dating system-use are not bringing them closer to achieving their anticipated social relationships (Zytka et al. 2018, p. 64).

## **Theoretical and Conceptual Framework**

The following section introduces the two theoretical concepts that underpin the project and serve as guiding paradigms in understanding the collected empirical data. The concepts include Value Sensitive Design (VSD), with special attention paid to by Ibo van de Poel's contemporary contribution. The research adopts a combination of the traditional methodology of VSD and a modified version specifically applied in the domain of artificial intelligence. Van de Poel's framework of values hierarchy is also employed to aid the translation of values into specific design requirements. Moreover, the sociological concept of Resonance coined by German sociologist Hartmut Rosa are integrated into the framework of VSD. Given that the problem area of this study deals with a relatively new technology, the specific integration



of the two theories seemed to offer the appropriate methodology to support the research aims of this research.

## **Value Sensitive Design**

### **The Traditional Approach**

The following section introduces the foundations of value sensitive design to provide a comprehensive oversight of where the method and theory stem from. The further sections build on the original concepts and expand on them, making the framework more specific and applicable to the topic of this research. This broader introduction of the origins of VSD help establish a more comprehensive understanding of its applicability.

Since its foundation in the early 1990s, value sensitive design has been used as a theory, methodology, method and general approach aimed at highlighting human values before, during and after the development of various sociotechnical systems. VSD considers values not only during the design phase of a developing technology but also accounts for value changes along the way. It is a great design methodology due to its inherent self-reflexive character that accounts for changes in an evolving technology. It is a multi-disciplinary field of research that emerged to offer a method for the consideration of values with ethical importance in human-computer design. Its focus is on widely-held human values that have an influence on large groups of people as opposed to personal ones that are individually held (Van den Hoven et al., 2015, p. 14). Batya Friedman et al. (2006) defined what value means within VSD as: “what a person or group of people consider important in life” (p. 2).

Value sensitive design aims to shape technology development in accordance with shared societal values and encourage the early involvement of various stakeholders in the design process. This makes it well-suited to support initiatives promoting responsible research and innovation (Simon, 2016). VSD recognises that during the technology design process, societal values can unintentionally become embedded in the resulting technologies, influencing aspects like justice, fairness, and privacy. As a result, the question arises whether it is possible to intentionally incorporate desired values into technologies. In order to do so, approaches in value sensitive design offer specific methodologies to guide the design and development of technological artefacts that align with desired values.

User involvement in the design of sociotechnical configurations and artefacts is a paramount step. It can enable the design process to include the conscious inscription of human values into the technology. Understanding human activities, behaviours and values is integral to developing any kind of technology. The research's qualitative inquiry is aimed at uncovering such human values and their relation to the world in a naturalistic environment where people experience them as opposed to studying them in an artificial setting.

VSD draws on moral epistemology and uses an iterative tripartite design approach that consists of the investigation of conceptual, empirical and technical issues specific to a particular technology, employed iteratively. The first phase of VSD entails a conceptual investigation that delves into the philosophical underpinnings of the values pertinent to the design at hand. In traditional VSD literature connected to Batya Friedman's work, the following twelve human values have been identified to carry ethical importance that should be considered in design processes: "human welfare, ownership and property, privacy, freedom from bias, universal usability, trust, autonomy, informed consent, accountability, calmness, identity, and environmental sustainability (Cummings, 2006, p. 3 )." However, it has been recognised that while this list consists of broad values generally discussed in academic literature around ethics and technology, they may not be exhaustive or independent. This investigation focuses on discerning how these values are either reinforced or potentially undermined by a given design of a technology. The conceptual phase not only serves to pinpoint values that may be affected by technology, but also contemplates how the technology might confer social benefits while simultaneously imposing negative impacts on stakeholders both direct and indirect. Essentially, this phase lays the groundwork for a comprehensive ethical evaluation of a (developing) technology.

The second phase of VSD centres on empirical investigation, employing both quantitative and qualitative measurements to assess the design from technical and value-oriented perspectives. This phase is dedicated to evaluating how design trade-offs influence perceptions, behaviours, and the prioritisation of competing values. An important aspect of this second phase for a designer is to figure out ways to support or minimise value conflicts (Cummings, 2006). The empirical investigation provides the human context in which the technology is adapted, while providing grounds for evaluating the success of a particular

design. “Empirical investigations examine stakeholders’ “understandings, contexts, and experiences” in relation to technologies and implicated values (Friedman & Kahn, 2003 as cited in van de Hoven et. al., 2015, p. 16).

The third phase of VSD examines the technical aspects of the given design. Here, detailed analyses are conducted to determine how specific technical designs either support or hinder the values identified in the earlier conceptual investigation. This phase distinguishes itself from the empirical phase by concentrating on the technology itself rather than the individuals or larger social groups who interact, impact or are influenced by the technology (Cummings, 2006). It can focus on already existing technology designs and their relation to the identified values, or on the development of new technology features that support said values. For the purpose of this study, this step will be modified relying on the newer framework created by Umbrello and Van de Poel (2021).

It is important to note that the aforementioned three phases are often interactive and integrative, where the investigations overlap with each other. The three steps may inform or influence one another and thus do not need to be strictly delineated.

### **A Modified Approach**

The previous section has outlined the tripartite methodology of the traditional VSD approach. However, an often neglected element of that process is the translation of values into specific design criteria, which is an essential step in fulfilling the goals of this research regarding technology improvement. To make the VSD theory better suited for answering the research questions of this paper, Ibo van de Poel’s contribution to VSD gained significant importance. His framework of value hierarchy, subsequent value translation into design requirements and his dedicated research about mapping value sensitive design onto AI for social good purposes (2021) help formulate an adapted framework well-suited to the specific investigations of this study. For a more detailed application of his approach, see the Analytical Strategy section.

Umbrello and Van de Poel (2021) created a modified framework of VSD in order to specifically address the challenges posed by artificial intelligence. Since recommender systems used on online dating platforms are a subset of AI, this specialised angle offers a

fitting tool to think about the problem area of this paper. The steps of the modified approach are close to the original framework with slight modifications. The new framework consists of the following four steps:

### ***Context analysis***

VSD acknowledges that there are different starting points for designing technologies, including the technology itself, its usage context, or a specific value. Context analysis is vital, as socio-cultural and political norms affect how values are understood both conceptually and in practice. It is also important to account for stakeholders' understanding and their sociocultural context to ensure the identified values align with theirs.

### ***Value identification***

The second phase defines core values for the design process. These can come from three main sources: values promoted by the design, those respected by the design (for example AI ethics principles), and context-specific values identified in the first phase. This step combines empirical and normative elements, geared towards the identification of key values to guide further design efforts.

### ***Formulating design requirements***

The third phase establishes design requirements based on the identified values in phase two as well as from the contextual analysis undertaken in phase one. Frameworks such as the values hierarchy can help in linking values and design requirements or converting values into actionable design criteria.

### ***Prototyping***

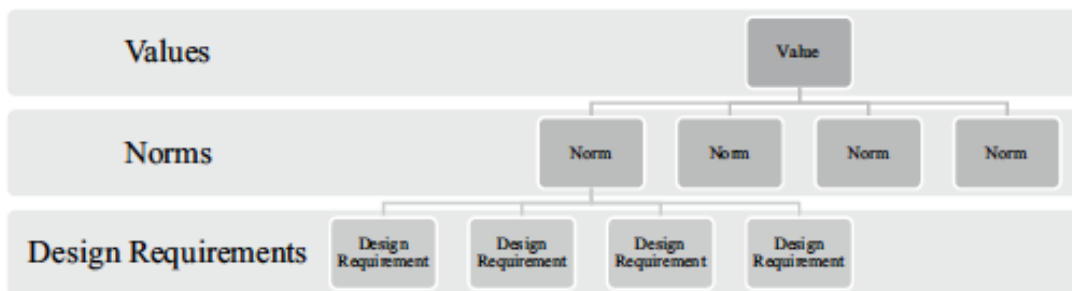
In the final fourth phase, prototypes are created to meet the established design requirements. This aligns with the traditional approach in VSD of creating a value-centred mock-up, prototype, or field deployment, however, in the case of AI, it is extended to the entire lifecycle of the technology.

## Values Hierarchy

The notion has been coined by Ibo van de Poel with the aim of making the translation of values into design requirements more tangible. A values hierarchy is an organised system made up of high-level values at the top layer. The second layer comprises various norms that relate to actions that help the fulfilment of the higher value and can include *objectives* without a concrete target, *goals* with a specified target, and *constraints* that outline boundaries and minimum conditions. The final bottom layer is made up of specific design criteria/requirements that are tangible and can aid the inscription of the chosen value into technology design. The hierarchy is structured through two key relationships; 1) *specification* which denotes the process of breaking down higher-level elements into more detailed ones within the hierarchy, and 2) *pursuit for the sake of* referring to the link that connects lower-level elements, like design requirements, with higher-level elements such as broader norms and values. This hierarchical arrangement provides a coherent framework for understanding and implementing values in the context of technology design (Van de Poel, 2013).

**Figure 1**

Values hierarchy (Van de Poel, 2013)



Values hierarchy. Source: Van de Poel, 2013

## The Concept of Resonance

The coming section introduces Hartmut Rosa's contemporary theory of Resonance. His concept has high relevance for this research paper as it aptly describes the phenomenon that

the research area is concerned with, which is the detrimental tendency experienced in the quality of human relationships, accelerated by online dating platforms. His concept of resonance plays a significant role in the forthcoming chapters as it forms the basis of the analytical strategy and is considered a human value that is worth investigating through value sensitive design.

### **Our relationships to the world**

“The prevailing modern notion that quality of life is necessarily improved by an increase in options and resources is misleading. [...] The concept of a difference between successful and unsuccessful relationships to the world defined neither by the relative abundance of resources and opportunities nor by one’s share of the world, but by the degree to which one is *connected with* and *open to* other people (and things)” (Rosa, 2019, pp. 26-27).

The ideas explained in Resonance are built on Rosa’s previous work, grounded in critical theory, about the concept of acceleration in modernity. He extends it to examine how our relationship with the world, or lack thereof, is at the heart of many contemporary crises, including environmental issues, democratic challenges, and psychological well-being. In response to these crises, Rosa suggests that we should recognise and emphasise the concept of 'resonance' as a valuable counterforce. He proposes that a possible solution to the issues of social acceleration could be found in resonant experiences and connections. As Rosa puts it on the first pages of his book, “If acceleration is the problem, then resonance may well be the solution” (Rosa, 2019, p.1).

Rosa's concept of resonance encompasses a broader perspective on human relations, emphasising the quality of our connections and interactions with and to the world. He explores how resonance applies to various aspects of human life, from personal experiences to societal and environmental challenges.

In order to create a social-scientifically operationalisable concept of resonance, it is important to understand where the idea stems from as a physical phenomenon. The term has a Latin etymology, referring to an acoustic phenomenon that roughly translates to the word resound. It refers to the relation between two vibratory bodies where one has the capacity to generate

vibration from the other by using its own frequency. In terms of their relationship, this means that the two bodies or entities are independent and rely on “their own voice” to stimulate resonance. Despite being independent, the vibration of the two bodies in a resonant relationship can reinforce one another and exponentially strengthen the force of what one body could produce alone. According to his book, “resonance is not an emotional state, but a mode of relation. [...] a specific mode of relation - i.e. a specific way of being-related-to-the-world - in which the world or at least some segment of it is experienced as responsive” (Rosa, 2019, pp. 165-169).

In Rosa’s words, resonance is a strong concept because it “describes the nature of a relationship, but it doesn’t describe or prescribe the substance: it leaves open what you relate to” (Lijster et al., 2019, p. 71). Often, the concept is misinterpreted as harmony, however, Rosa states that resonance is not synonymous with harmony as it requires different voices to exist. It is a unique relationship in which subject-subject, subject-object, subject-world relationships are not only reciprocal but have the quality of openness towards one another and a desire to be affected and to answer to others. Simply put, “resonance is always a dynamic event, the expression of a vibrant responsive relationship that can be seen perhaps most splendidly when a person’s eyes light up” (Rosa, 2019, p. 196). It is an encounter that can, by definition, only happen between two or more subjects.

Rosa distinguishes between three types of resonant relationships: horizontal relationships including social relations like friendships, familial, romantic and political relationships. The second distinction is referred to as diagonal relationships to the world of things; and lastly, vertical relationships to life, existence, totality or the world as a whole in which the world has its own voice (Rosa, 2019, p. 195). For the purpose of this research, the category of diagonal relationships are relevant.

According to his theory, societies or social formations represent their own structures in which individuals relate to the world as part of the aforementioned three categories. Their specific ways of relating to the world define different cultures and spaces of resonance that are made up of unique and individual axes of resonance. Within horizontal axes of resonance, the phenomenon of recognition gains importance, where recognition can be seen as a form of

resonance in social relations. However, a distinction must be made between resonance and recognition, as the latter has to be gained on a competitive basis and can be fought for, making it a scarce commodity. Resonance, on the other hand, cannot be earned by competition but it is a dynamic phenomenon. It is a two-way relationship that has a responsive character and always occurs between two or more subjects. It can also be found at events where people come together to participate in it and mutually reinforce each other's attention and emotions. Regarding romantic relationships, a resonant experience refers to "the moment or moments of mutual, transformative, fluid, affecting encounter" (Rosa, 2019, p.197).

## **Methodology**

### **Analytical Strategy**

The analytical strategy of the research follows the framework of the VSD method and its defined investigative steps. In order to be better suited for the problem field, a combined approach has been utilised that employs elements of the traditional VSD approach and its more contemporary, modified format explained in the theoretical and conceptual framework chapter. The first step consists of a conceptual investigation/context analysis utilising the literature review and Hartmut Rosa's Resonance theory to define the sociotechnical context of the research and present arguments for the need for inclusion of the chosen value. Rosa's work provides a predefined value that plays a central role in the rest of the analysis.

The second step, the empirical investigation, introduces the primary qualitative data of the research through the format of thematic analysis. Friedman et al. (2017) has recently laid claim to the development of 14 unique value sensitive design methods. The list included the use of value-oriented semistructured interviews, which is what the further investigation will employ. The goal of the interviews was to shed light on the intricate experiences that individuals had with online dating as user in light of the predefined value of resonance. The approach used in this study to analyse the collected data follows a qualitative methodology employing thematic coding and analysis. The data is systematically divided, organised into categories, condensed, and presented to encapsulate the key insights in addressing the



research questions. Once familiarised with the data, the coding process began with a preliminary set of themes derived from prior research including the literature review and the theoretical framework. Initially, each interview was coded independently, highlighting the primary themes emerging organically from the dataset, prioritising heuristic elements over analytical ones. Subsequently, themes were grouped by identifying recurring patterns and commonalities across the interviews, accounting for both shared characteristics among cases and unique contextual aspects. At this stage, the data is abstracted from its original interview context and redefined as a unified category, which is later renamed, divided, or combined as the analysis advances (Given, 2008). The empirical investigation and the identified themes provide the basis for identifying norms that can fit into Ibo van de Poel's values hierarchy.

The final step of the investigation follows the structure of the values hierarchy and is aimed at formulating tangible design requirements based on the previously identified norms.

### **Data Collection**

The empirical material for this research is derived from value-oriented semi-structured qualitative interviews conducted with 8 individuals in person. Each interview lasted for approximately 45-60 minutes and was audio-recorded, transcribed, and supported by notes. The questions of the interview were informed by the theoretical framework to ensure that the insights would remain within the realm of the investigated value (see interview guide in Appendix 1). The format was chosen based on the intimate topic of the researched area which required individual inquiry in a setting that allows interviewees to feel comfortable enough to speak freely about their sensitive experiences. The sampling was based on selection criteria using demographic metrics and user relation to the technology. The criteria ensured to generate data from a homogenous group on a societal level which is heterogenous internally. Focusing on this selected group of users can help the identification of recurring patterns that might allow for a certain level of generalisation within the group. The selection criteria was two-fold: 1) the individual had to be a present/past user of the most popular online dating platform, Tinder, for at least one year and 2) their age had to fall within the period that is termed 'millennial' age, referring to people who were born between 1981 and 1996. The first criteria was set up to ensure participants could reflect on their experience based on substantial technology use that gives considerable validity to their answers as opposed to having limited

experience with the technology. The second criteria was developed based on the accessibility of the studied technology to the age group. Millennials represent a demographic group of people who were well into the age of dating by the time online dating platforms became popular, and potentially experienced dating prior to its digitalisation as well. This ensured richer and a potentially more holistic perspective on the topic. Participants were recruited in the Copenhagen Capital Region based on availability. On top of the two selection criteria, interviewees were selected to show diversity in their gender and sexual orientation. Each participant was informed about the purpose of this research and provided their consent so that their data could be used for analytical purposes. Their identity has been anonymised to protect their privacy and ensure the topic did not pose limitations to the content that they were willing to share. Participants' names are replaced by "P+number" in the later chapters.

### **Participant profiles**

The following individuals were interviewed during the data collection process:

P1: 31 years old, male. Collectively, he has been using online dating platforms for 1 year, including the following platforms: Tinder, Bumble, Happn. He has been an active user of Tinder for 1 year.

P2: 28 years old, male. Collectively, he has been using online dating platforms for 5 years, including the following platforms: Tinder, Grindr. He has been an active user of Tinder for 1 year.

P3: 31 years old, female. Collectively, she has been using online dating platforms for 6 years, including the following platforms: Tinder, Bumble, Facebook Dating, EliteSingles. She has been an active user of Tinder for 6 years.

P4: 29 years old, male. Collectively, he has been using online dating platforms for 6 years, including the following platforms: Tinder, Grindr, Scruff, ROMEO. He has been an active user of Tinder for 5 years.

P5: 30 years old, male. Collectively, he has been using online dating platforms for 1 year, including the following platforms: Tinder. He has been an active user of Tinder for 1 year.

P6: 28 years old, female. Collectively, she has been using online dating platforms for 4 years, including the following platforms: Tinder, Bumble, Hinge. She has been an active user of Tinder for 3 years.

P7: 28 years old, male. Collectively, he has been using online dating platforms for 3 years, including the following platforms: Tinder, Bumble. He has been an active user of Tinder for 2 years.

P8: 27 years old, female. Collectively, she has been using online dating platforms for 5 years, including the following platforms: Tinder, Bumble, Hinge. She has been an active user of Tinder for 5 years.

### **Limitations and Delimitations**

Due to the user-centric perspective that the research adhered to from its outset, other stakeholders' point of view have not been included in the scope of this study that would be relevant to get a comprehensive understanding of what is possible to accomplish from the recommended design improvements. Additionally, the central value that the analysis deals with has been predefined prior to the commencement of the analytical steps. This meant that the initial phases of the conceptual analysis aimed at value identification became unnecessary to apply.

## **Body of Analysis**

The following chapter presents the analysis of the collected materials and goes through the tripartite framework of the value sensitive design method, comprising conceptual, empirical and technological investigations. Firstly, the chapter starts with a conceptual analysis building on the conclusions drawn from the literature review and theoretical framework to set the

sociotechnical context for the rest of the research. It presents arguments for working with the predefined value of resonance. Building on the first part, it introduces the findings derived from the empirical material, presented through thematic analysis. Building on these results, Ibo van de Poel's values hierarchy is applied in order to identify relevant social norms that can help incorporation of the value into design practices. Lastly, the final step of the analysis presents the tangible design requirements that can serve as a basis for future technology improvements by way of the identified value inscription.

## **Conceptual Investigation**

Following the traditional VSD approach, the outset of the research consists of the conceptual phase, aimed at identifying ethical or societal values that may be affected by the technology as well as mapping out technology's impact on stakeholders. Relying on Ibo van de Poel's modified approach, this step can be interpreted as two separate ones, namely context analysis and value identification. Building on Van de Poel's theory, research can often have its starting point in a pre-established value that lays the groundwork for the remaining investigation. For this project, the pre-defined value of resonance provides the basis for the coming analysis. Resonance has been selected based on the problem area and following literature review, that justified the aim of focusing on a value outside of the traditional twelve identified by Friedman.

The literature review identified relevant research papers that helped understand the technology under investigation from the perspective of diverse academic fields. Within the topic of online dating, a significant amount of papers discuss its issues from a system design perspective and user experience. While those insights are imperative, in order to shed light on the intricate workings of the technology that fuels the majority of online dating platforms but are not visible to the public eye, recommender algorithms have also been included in the scope. Taking a departure point in computer science, algorithmic research and science and technology studies, these papers provided the technological context for identifying a relevant value that has not been considered in relation to online dating yet and could improve its sociotechnical domain. From ethical concerns to unenjoyable user experiences to the larger phenomenon of homogenising user preferences, the literature has pointed at the need to improve the technology focusing on users' interests. Taking a departure point in

techno-anthropology's interdisciplinary framework, the axis between users and procedures & artefacts was prioritised, where anthropology-driven, value sensitive design solutions gain the highest importance. Due to its wide applicability and underlying social critique, the theory of resonance proved to be a useful tool in bridging the problem areas that have been pointed out in the literature review. Given that the concept of resonance can be used to describe subject-subject and subject-object relationships and their complex qualities, it seemed to be an apt choice in investigating the relationship between users and the technology as well as between users. Focusing on a value that is outside the traditional ones within VSD research, this study aims to provide a contemporary angle and approach to modern design solutions for emerging technologies.

Additionally, within the large scope of the theory of resonance, a specific segment has been chosen as a focal point for this research, namely, its horizontal axes that has been described earlier in the theory chapter. The concept of a horizontal axes is introduced by Rosa through the examples of human relationships, including romantic ones, thus proving its relevance for this research once again. Combined with the gaps and critiques stemming from the literature review, the value of resonance proved its importance to be further researched with the aim of offering value sensitive design solutions for the technology in question.

## **Thematic Analysis**

The coming section comprises the empirical investigation of this study and presents the findings of the eight value-oriented semistructured interviews. The transcribed material was analysed through inductive coding to find patterns in the data, that were grouped and re-grouped into overarching themes. Seven themes have been identified in total that inform the subsequent sections of the analysis. Selected quotes from the interviews are showcased to support the findings. The final themes are the following:

### **1. Alternative universe**

The first identified theme consists of users' opinion of the social context of the questioned online dating platform (Tinder). A strong theme emerged during the interviews that described the platform as an "alternative universe" and "fake reality" that is "completely detached from

real life”. Various interviewees pointed out the fact that there are “distorted social norms at play” that users submit to, which they all considered “negative”, “disgusting”, “anxiety-ridden”, and “terrible”, yet feel like it is the “status quo of the playing field”. The collective opinion is that people treat one another entirely differently than in offline situations because the social stakes seem significantly lower. Users are hiding behind screens and barely come across as real people and more like strangers or characters with no context of point of contact. This makes the interactions feel as if they happen “in a vacuum” or bubble. There is a strong detachment present on the platforms from moral and ethical values that would be expected to be respected outside of the digital space. P1 likened the milieu of Tinder to a video game:

*It's like playing World of Warcraft: everyone is just a character, you have no idea who they are or why they are there. You feel like you can be anyone, and everyone else feels that too. You don't know who is honest and who is faking their game. The worst is when they treat you like an NPC (non-playable character) and ignore you completely.*

Interestingly, each participant was highly critical of their own actions and could reflect on their behaviour as one that only exacerbates the flaws of the system. Admittedly, they give in to the harmful collective behaviour of the digital scene demarcated by ignorance, ghosting, low-effort encounters and lack of respect for one another. Despite their acknowledgement of these harmful tendencies, most of them felt like the platforms and their users socially construct the rules that are at play that you can “either take it or leave it”. P4 reflected:

*Ignoring someone in real life would be weird and rude, but on Tinder it is totally acceptable. Because you know that you are easily replaceable, so why would you care? It's not socially acceptable, but I don't want my time wasted, so you ghost people you don't like. It doesn't seem like a big deal. It comes with the package of online dating culture.*

P2 shared a similar thought that he referred to as a “twisted mindset”:

*We all give into the game, you have to play by the rules to take part. It requires a version of myself that I normally wouldn't want to be, but it is so status quo that it's hard to imagine anything else.*

## **2. It is a numbers game**

To expand on the first theme and the root causes of why people act tremendously differently than what they deem acceptable, the second theme offers a partial explanation. One of the most unanimous themes emerged in relation to critiquing the high number of available people. This particular feature appears to cause various problematic effects and diminished user experience both online and offline. The terms “conveyor belt of people” and “burnout” stood out specifically, as several participants used it to describe the way they perceive other people on the app and, consequently, to explain the effect that it has on their emotional relation to the process of finding someone on the app. P3, who has been an active user for over six years called the process a “never-ending rat race that no one is taking seriously”:

*I am overwhelmed by the number of available people. You get this illusion that you have unlimited possibilities and because of that you don't really invest much into anyone. It becomes a conveyor belt of strangers and you start treating them in inhumane ways. I do it too. After a point, you cannot handle all the options that you have. I have dozens of guys writing to me and it leaves me with choice paralysis and then a burnout. It is impossible to have quality connection with so many people.*

P7 shared a similar critique even though he had the opposite problem to start with. He talked about his initial desperation about not having enough matches that got him to pay for premium features that can boost one's profile and increase the number of matches. He hoped that paying would help him find the connection that he was looking for or at least increase his chances. However, after the premium feature delivered on its promise and resulted in more matches for him, he instantly regretted his decision:

*It worked out and I started seeing more matches but then there were so many that it was impossible to write to all of them or meet them and they started losing their value. After just one week, I felt burned out and regretted paying for it. I was thinking*

*this must be what all the girls feel like. It actually felt disgusting when I realised that the app controls my faith.*

He expanded on the transition that his approach has gone through over the years that he spent on the app, and, in hindsight, he believes the app changed his behaviour for the worse:

*When I started using it, I used to put more effort in and I had higher expectations but the more I used it, my motivation went down and I started putting less and less effort in. Initially the rejections made me feel sad but then I got used to them and now it's just a numbers game. I don't even try to start an interesting conversation in the beginning because girls often don't even respond.*

P4's words summarise the core meaning of this theme:

“It might feel terrible but you have to shrug your shoulder and move on. There's always someone else”.

### **3. Dehumanising effect**

The third theme can be seen as a derivative of the first two, where the skewed social behaviour and unreal potentials result in a dehumanising experience for most users and feeling disposable. Most of them said that their online behaviour has nothing to do with how they would act in their everyday social interactions but the online dating scene changes them for the worst. As P2 explained:

*You can treat people in really shitty ways because you don't have to see them face to face. There are so many options and people cannot commit to just one and you feel disposable. This attitude fosters a culture of abandonment, dishonesty and ghosting.*

P7's attitude supported this statement as she illustrated her strategy and pointed out the fact that users become commodities on Tinder:

*You have so many options that you have to wade through them and dispose anyone who doesn't live up to your standards. It's a totally artificial world where your*



*baseline expectation is that your options are endless, so you treat them as disposable. You become a commodity that is chosen and then tossed away. It's like a low-involvement purchase in business. You don't think twice about it.*

P1 and P8 both agreed that the platform has been instrumental in their lives in finding a long-term partner, which they consider a great success, however, they both thought the path to success was paved with “dead ends, endless scrolling and addiction” and “complete lack of decency towards each other”. Reflecting on five years of online dating and a consequent healthy relationship, P8 shared the following:

*I always had this romantic idea about dating that I tried to hold on to, but it became obvious really quickly that it's not how people look at it. It felt like a slap in my face every time to realise that people treat you not like a human but more like a product that they can throw out after the first try. As if none of us would have emotions anymore. You kind of need to eradicate your feelings to protect yourself.*

Several of the participants highlighted that their actions are not conscious choices but the outcome of an automatic reflex that is often connected to mindless scrolling or boredom, which explains why they might not feel the weight of their actions. The coming theme further expands on this thought.

#### **4. Addictive design**

Another common theme that came up during most interviews concerned the addictive design of Tinder. From the heavy gamification of the features to its intelligently timed reward system, various aspects of the platform lead to people's addictive behaviour.

P1 first criticised the constant scrolling that he believes is more addictive than on any other social media platform, specifically because of the photo-based and often sexual content that the app is feeding to its users.

P2 also reflected on the swiping feature of the app that leads to “doomscrolling - when your brain basically gets numb and you don’t control it anymore”. She continued to explain the vicious cycle that doomscrolling leads to:

*I feel burned out so I delete the app and promise myself not to use it again but then after a long hiatus I download it again. It’s a vicious cycle with no result but it gives a chance out of desperation. I end up going in circles.*

Apart from the mindless scrolling and swiping, the heavy gamification that the platform features has also been linked to its addictive nature:

*It feels like a game still. It’s about accumulating matches, having casual chats and you forget why you came initially. It’s all heavy gamification for me where the focus is on getting more people in your win pile. It’s very easy to get into a space of competitive validation, which I normally don’t seek in life (P3).*

## **5. Limited expressions**

As mentioned above, it has been pointed out in various conversations that the design of the platform is strongly focused on the looks of people, where photos gain the highest priority. Most of the interviewees talked about this theme as something negative that poses limitations to their experience. It has also been linked to the pressures of standing out in an environment that does not allow users to showcase their complexity and human nuance. Some referred to it as “it’s like a menu of people” while others emphasised the constant pressure this places on them:

*It is too focused on the looks and uploaded photos as opposed to having quality descriptions. It only serves the ego but doesn’t help develop a true interest in people. You always feel pressured to better, be more interesting or try to stand out somehow. You need to exceed their high threshold. It’s a distorted process of getting to know people (P1).*

P7 shared a similar thought regarding his approach to standing out and trying to gain more interest from people:

*I change my profile all the time to get more likes, so I do not even show who I truly am but it's more of a reflection of what's trendy. It's a tradeoff to get more likes because you measure your success like that. I shouldn't do this but you have such a small chance to stand out that you show what you think girls want to see.*

P3 thought the limited ways one can express themselves on the platform also adds to the dehumanising fallout of the experience:

*Online dating as a whole distils complex humans into palatable bites to be served. It minimises people to make an impression in just a few seconds. You cannot get a good idea of a person from one sentence and a few photos. Boiling down nuanced, complex humans to just that is very flawed, superficial and vain.*

The same sentiment has been expressed by many others who explained that this looks-based approach leads to the instant judgement of others. It has also been stressed that the user interface is extremely static, referring to the photos plus bio description format that one can showcase on their profile, a format that has been prominent on Tinder for many years. In relation to that, the lack of interactive features has been pointed out by several participants as something that adds to the unsatisfying user experience.

## **6. Wasted time**

As a continuation of the second theme that talks about the high volume of people on the app, the topic of wasting time has emerged. Either in relation to scrolling on the app or investing energy into people who do not reciprocate the efforts, several interviewees referred to their experience as wasted time. This theme also shows a link to the third one, the dehumanising effect, in that users justify their unacceptable behaviour towards others as a protective mechanism not to waste their own time:

*The app makes you think you think you have so many choices because you can match with many people but in reality, you don't - it's just an illusion. Your time is limited and I don't want to waste it so you are disposable with nice people who are only 8/10 and not 10/10 (P6)*

P7 talked about wasted time in relation to explaining why the user experience often feels disappointing:

*As a guy, you put so much effort in but you don't get it back equally. That is lost time, you end up wasting so much time.*

## **7. Lack of transparency**

The final theme is the culmination of unmatched expectations due to users' lack of transparency regarding their intentions. This theme also embodies a lack of information about people in more general: behaviours, values, interests and lifestyle - topics that seem impossible to get a grasp of online. This theme has links to several other ones previously mentioned, both as a cause of harmful feelings as well as disappointing user experiences.

P8 shared that this has been the most common issue that she experienced over her years of online dating - confusing at first and increasingly upsetting and frustrating the more she experienced it:

*You never really know what they want from you and most people aren't upfront about it. They would rather block you or ghost you without an explanation but own up to their real intentions. It doesn't make any sense. We're all on there to find the right match, so it's counterproductive to hide what you want.*

P7 offered some explanation as to why this might be a common trend:

*I had specifically put it on my profile before, but then someone told me I should remove it because it might scare some people away, so I did it to increase my chances. It's not honest, I know that, but it helps increase my number of matches.*

P6 shared that the lack of information and transparency about people's interests has forced her into uncomfortable situations:

*We only met once and they expected something from me that felt really disrespectful and uncomfortable. I didn't even get the chance to share what my expectations were. They would show zero consideration for my body and my choices.*

Most interviewees mentioned that it is truly difficult to gauge what people want or do not want regarding forming a connection. It is often up to luck whether they have a positive encounter or chat over the app, but many of them acknowledged those successful occasions to the numbers game approach. Others highly criticised the lack of filtering options that could limit the pool of available options and potentially have more curated experiences.

## Values Hierarchy

### Norms

Following the VSD framework defined by Ibo van de Poel, results from the context analysis and empirical investigation can aid the identification of norms within the values hierarchy. Referring to Van de Poel's terminology, the norms are created and held together with higher-level elements in the hierarchy, namely the value of resonance, by the relationship that he termed *in the pursuit of*. This layer is primarily based on the findings from the thematic analysis and supported by the conceptual investigation, the following norms have been identified to be particularly relevant for orienting online dating platform design towards resonant experiences:

**Norm 1:** The technology should promote transparency

**Norm 2:** The interface should be interactive

**Norm 3:** Choice overload should be prevented

**Norm 4:** Respectful behaviour should be ensured

**Norm 5:** Socially acceptable norms should be promoted and encouraged

**Norm 6:** Diverse and holistic expression of people should be supported

### **Design Requirements**

The final layer of the values hierarchy framework consists of design requirements that are formed in relation to the identified, higher-level norms. Norms are broken down to these lower-level elements through *specification*. Since this study focuses on a certain segment of the larger VSD method, the following design solutions serve as suggestions as opposed to being strict requirements. They aid the value inscription in support of users, who only represent one group of direct stakeholders. In order to generate comprehensive design requirements, further research should be carried out (see Future Work section). The suggestions are presented under their respective norm. Based on the individual norms introduced in the preceding section, the following design suggestions can be established:

#### **Norm 1 - [transparency]**

##### *Feature 1*

Users would receive frequent reminders encouraging them to express their true preferences on their profiles in terms of their motivations for being active users. This feature could increase transparency around expectations and help reduce the number of occasions where people are matched with individuals who have different or opposing motivations when meeting up.

##### *Feature 2*

Upon registration, an informative page would introduce users to the functioning of the recommender algorithm that governs the platform and essentially dictates whom they are suggested to match with. It would specify the criteria that factors into the algorithm.

#### **Norm 2 - [interactivity]**

##### *Feature 3*

To make the process of getting to know others feel more personable, users could engage in interactive games such as drawing together and listening to music on the app.

#### *Feature 4*

Based on common interests, the platform would suggest activities for dates. This would help avoid dull or uncomfortable encounters after which people feel less motivated to further engage with others or move on to the next recommended person.

#### *Feature 5*

A gamified quiz would be offered to both users prior to starting their conversation with questions related to each others' profile details that they would be required to answer. This would help shift the focus from a photos-only approach and encourage users to pay attention to other qualities in one another.

### **Norm 3 - [choice overload prevention]**

#### *Feature 6*

There would be a daily limit of two matches that one could reach in order to prevent choice overload and burnout caused by the large number of available options. Feelings of scarcity could also increase perceived value and subsequent attention.

#### *Feature 7*

Once a conversation begins, the user could only continue talking to that one person and other matches would be inaccessible until the active conversation is ended by both parties. This way people could direct their focus, and invest more time and effort into each person.

### **Norm 4 - [respectful behaviour]**

#### *Feature 8*

Frequent notifications would be sent to users to remind them to showcase behaviour that is kind and respectful towards others and reflects how they would like to be treated in return. This feature could increase the sensitivity of people towards other users.

### **Norm 5 - [socially acceptable behaviour]**

#### *Feature 9*

A counting unit would constantly display old and barren conversations that would otherwise be forgotten. When conversations had no activity for a certain time, the displayed number

would increase and a notification would be sent to the user. This would remind users of the high number of interactions they have and potentially increase feelings of accountability.

#### *Feature 10*

To avoid ghosting and the sheer ignorance of people, after unsuccessful dates or encounters, users would have to leave a detailed review of their experience and the person they met. This feature could increase the acknowledgement of others, boost feelings of respect and help make experiences feel less fleeting and meaningless.

#### *Feature 11*

After offline meetings, users would be required to upload photos as evidence of the encounter if they wanted to keep using the swiping feature to meet other people.

### **Norm 6 - [holistic expression of oneself]**

#### *Feature 12*

To avoid boredom when looking at suggested profiles, dynamic copy and design could make each profile be presented differently visually, increasing user attention.

#### *Feature 13*

Photos should be placed at the bottom of the profile, highlighting other, more nuanced characters and qualities of the users.

#### *Feature 14*

Users should be restricted from changing that profile details at any time. This feature would encourage them to thoroughly think about the content they upload for the first time which should reflect their honest personality and intentions.

## **Discussion**

The following chapter brings together the findings from the thematic analysis, and subsequent values hierarchy and discusses them through the lens of the theoretical



framework. The discussion is intended to expound on the meaning gained from the findings in relation to the problem formulation of this paper. By looking at the findings from the analysis of this research, it is possible to provide answers to the problem formulation and research question.

First, the modified VSD approach adopted in this study proved to be conducive in providing answers to the proposed research questions. Moreover, working with a selected value that is outside the traditional list outlined by Friedman provides a new, contemporary attempt at improving the user experience of a relatively young technology that is still under significant development.

In the attempt to operationalise the highly philosophical concept of resonance, this research managed to find an application for it that proposes tangible solutions inspired by a nuanced understanding of human relationships. Though the concept does not offer a straightforward solution in the realm of online dating platforms or match-making algorithms, fusing it with the practical framework of value sensitive design resulted in a tangible methodology that aided the formation of practical design recommendations. Resonance is a foreign concept for product designers, software developers, user interface designers or other stakeholders who play an active role during the inscription phase of the technology development. However, the proposed design suggestions provide a new foundation to think about user needs and experiences from a standpoint that advocates for ethical behaviour, respect, transparency and honest expression of self.

The aspect of Rosa's theory that served as a lens for the analytical strategy and for uncovering the meaning of the empirical data is concerned with the horizontal axes of resonance. Focusing on this particular segment of the concept helped employ it practically, however, it must be noted that the concept is multifaceted and can possibly be understood or applied differently to serve other purposes. The norms and final design suggestions are dependent on the way resonance has been conceptualised and specified for the purpose of this study, where conceptualisation is understood as "the providing of a definition, analysis or description of a value that clarifies its meaning" (Van de Poel, 2013, p. 261).

Value sensitive design also accounts for potential value conflicts, which are relevant to talk about in the context of this research. Making the platform more resonant and enjoyable for users might conflict with values that are relevant for other stakeholders, whose interests are outside of the scope of this study. As mentioned in the delimitations section, this research focuses on exploring the techno-anthropological interface between users and the artefact, and how that can be improved, which leaves the focus on experts for potential future work. It must be noted that the technology is one that serves private, profit-oriented organisations whose stakeholders might hold other values in interest than resonance. Features that have been critiqued by users, such as expensive, premium solutions that have the power to improve user experience momentarily, are highly relevant for business stakeholders in keeping the platform financially beneficial at the detriment of creating resonant experiences for users. Usability and human values have a unique relationship in VSD, and often one has to give way for the other to take place. The proposed design suggestions are concentrated on improving user experience, which is motivated by the inscription of a human value, that leaves a possibility for a tradeoff with usability.

Second, during the thematic analysis, several additional values have emerged that might carry importance for future work purposes and could possibly offer a different starting point for a similar study. These values are a) safety — a topic that came up in relation to female experiences on online platforms who often endure harassment both verbally and during physical encounters. Another value that was mentioned was b) privacy — the concept came up in the context of the shared content on users' profiles that is widely accessible to the public eye and it is hard to control who sees it. A final value that came up was c) self-esteem — in combination with other major themes highlighted in the thematic analysis about pressure to stand out, self-labelling and self-categorising based on perceived attractiveness, self-esteem was the umbrella term that a lot of the shared experiences fall under. Although it can be considered a value with critical importance, it has been incorporated under the larger theme of demuhanising behaviour and utilised to inform the norm about respectful behaviour. It is also important to mention that technology can impact certain evaluative dimensions that have not been considered important before. For example, the correlation between mobile phone design and car safety have been two separate values in the past, however, the increasing number of drivers using their mobile whilst in the car made safety a prominent

value in phone design practices (Van de Poel, 2021). The same trend might apply to online dating platforms, where other values than resonance will carry more importance in the future than they do today. The suggested design features also must count for value change taxonomy, meaning the changing of values over time.

Third, the identified norms and subsequent design suggestions can be given depth and additional meaning to through Rosa's theory. Although the seven themes that were identified through the thematic analysis have been presented individually, many of them overlap in their meaning and resulting norms as well. The common theme that emerged around the pressure that users experience to stand out in a crowd of infinite candidates is closely related to the dichotomy that Rosa draws between competition and resonance:

As a result, modern and a fortiori late modern subjects not infrequently view the world as a kind of “shark tank” in which one must be better and faster than others in order to survive. Losing one's competitive edge can mean sinking to the bottom and disappearing from the market. (Rosa, 2019, p. 202)

According to Rosa, competition and resonance are mutually exclusive experiences, which directly correlate with the experiences shared by the interviewees. Various participants described being an active user on Tinder as similar to the “shark tank”, exacerbating a competitive mindset that in turn hinders a resonant experience. The themes around user strategies related to a “numbers game” and the resulting choice overload, burnout and feelings of overwhelm are all interconnected ideas that can be explained through this competitive mentality that the platforms trigger. Resonant relationships also require that subjects use their own voice and respond to one another in order to create responsive resonance first, and, eventually, synchronous resonance. The final norm that was identified requires the design to allow users to express themselves holistically, by way of an honest and diverse presentation of their characteristics and expectations. The fulfilment of such requirements would certainly support the formation of more resonant relationships.

Rosa also discusses the ideas of an indifferent social world, one in which people are overlooked and rendered invisible. What is a “form of disregard, what we are dealing with

here is in any case an alienated, mute, reified social relationship, a relation of relationslessness” (Rosa, 2019, p. 198). This is precisely the phenomenon that participants described under the dehumanising behaviour theme that is the byproduct of socially abnormal and distorted behaviours that even participants themselves consider harmful and not supportive of healthy relationships. Though it has become commonplace and the status quo to showcase behaviour characterised by ignorance and a lack of respect for others, every interviewee seemed to be deeply critical of these tendencies and unanimously agreed that it only pushes them further from creating connections based on mutual recognition of one another. “A social world conceptualized and perceived in this way initially has few resonant surfaces to offer, as competition established and institutionalizes repulsive or at best indifferent relationships to the world.” (Rosa, 2019, p. 202)

Overall, the relational quality of people’s connections is always defined by a certain desire, defined by something that they perceive as attractive. It is this quality that fundamentally drives user motivation on online dating platforms. As the current design and user experience suggests, users are often far from reaching their desired outcome, leaving them in a state of indifference, rigidity and burnout, which are signs of alienation, in which axes of resonance are mute or deaf. To provide a form of antithesis, inscribing design features that stem from the conceptualisation of resonance during the development of the technology could potentially serve as a solution.

## **Conclusion**

Based on the findings of this research, it is possible answer the proposed problem formulation of: *How can value sensitive design improve the user experience of online dating platforms to forge resonant human connections while sustaining users’ interest in using the platform?*

The research employed a unique modified framework of value sensitive design that combines elements of the traditional approach with contemporary adaptations guided by Ibo van de Poel’s contribution. The application of his values hierarchy frame of reference proved to be successful in the translation of the central value of resonance into tangible design solution. Using Hartmut Rosa’s resonance theory as the central value of the investigation has resulted

in a contemporary perspective on augmenting user experiences within online dating platforms. The identification of 6 pivotal norms in this context has not only contributed to a nuanced understanding of user experience but also provided the grounds for the development of 14 design features - providing the answer to the research question of: *What design solutions can ensure the inscription of the value of resonance in the development of online dating platforms?* These identified norms, ranging from transparency and interactivity to mitigating choice overload and fostering respectful behaviour, could serve as critical touchpoints for designers in the future development of online dating sites. Additionally, the advocacy for and facilitation of socially acceptable norms, as well as support for diverse and holistic expressions of individuals constitute integral aspects of a truly user-centric technology.

## **Future work**

Since the given research had some natural limitations and delimitations regarding its scope and focus area, it left possibilities open for future work that could expand on its findings. In order to accommodate for the entire techno-anthropological framework of users-experts-artefact and their intricate relations, exploring the axis between users and experts as well as experts and the artefact could provide a sufficient basis for future work. Mapping out the larger network of stakeholders interested in the technology, including direct and indirect stakeholders could also help extend the perspective on what is feasible to actualise from the recommended design requirements. Investigating their roles and interests more closely could also reveal other values that carry critical importance regarding the technology. Lastly, the final phase of the modified value sensitive design approach, including testing and prototyping, could also serve as inspiration for future work to test the viability of the final results of this study.

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